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## Measuring the electron electric dipole moment using ultracold molecules

Despite its many successes, the Standard Model of particle physics is thought to be incomplete, because it leaves unanswered several major questions. One of these is the origin of the observed asymmetry between the amount of matter and antimatter in the visible universe. While we cannot currently explain what caused the asymmetry, we know that it requires the presence of new interactions violating several fundamental symmetries. Electric dipole moments of elementary particles are one direct signature of such symmetry violation, that can be tested via precision measurements using heavy polar molecules. In this talk, I will discuss how to build an apparatus that uses molecules cooled to microkelvin temperatures to make extremely precise measurements. With very careful measurements, such table-top experiments will enable us to explore new physics up to PeV energy scale.

## **Scientific topic**

Symmetries

Author:LIM, Jongseok (Imperial College London)Presenter:LIM, Jongseok (Imperial College London)Session Classification:Poster Session